Association for
Institutional Research

PROFESSIONAL FILES | SUMMER 2017 VOLUME

Supporting quality data and decisions for higher education.

Letter from the Editor

Association for Institutional Research

Summer brings time to reflect and recharge. The Summer 2017 volume of AIR Professional Files presents four articles with intriguing ideas to consider as you plan for the next academic year.

Data governance is a pressing issue for many IR professionals, as sources of data proliferate and challenge our ability to control data integrity. In her article, *Institutional Data Quality and the Data Integrity Team*, McGuire synthesizes and interprets results from 172 respondents to an AIR-administered survey of postsecondary institutions on their data integrity efforts. She describes the current state of data governance and offers strategies to encourage institutional leaders to invest in data quality.

Those of us who work in assessment often take it for granted that assessment results will be used for learning improvement. Fulcher, Smith, Sanchez, and Sanders challenge this assumption by analyzing information from program assessment reports at their own institution. *Needle in a Haystack: Finding Learning Improvement in Assessment Reports* uncovers many possible reasons for the gap between obtaining evidence of student learning and using that evidence for improvement. The authors suggest ways to promote learning improvement initiatives, and share a handy rubric for evaluating assessment progress.

Institutional researchers are beset with requests to form peer groups, and it seems that no one is ever satisfied with the results. Two articles in this volume present very different methodologies for forming sets of comparison institutions. In her article, *A Case Study to Examine Three Peer Grouping Methodologies*, D'Allegro compares peer sets generated by different selection indices. She offers guidance for applying each index and encourages cautious interpretation of results. Rather than rummaging around for the perfect peer set, Chatman proposes creating a clone, or doppelganger university, one that is constructed from disaggregated components drawn from diverse data sources. In *Constructing a Peer Institution: A New Peer Methodology*, he walks us through the process of creating peers for faculty salaries, instructional costs, and faculty productivity. While the constructed peer approach has its challenges, the appeal of achieving a perfect fit peer is undeniable.

I hope your summer "reflection" inspires you to share your work with your IR colleagues through *AIR Professional Files*.

Sincerely,

Sharron L. Ronco

IN THIS ISSUE...

EDITORS

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ARTICLE 143

CONSTRUCTING A PEER INSTITUTION: A NEW PEER METHODOLOGY

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About the Author
Steve Chatman is an institutional research analyst in the Office of Institutional Research and Decision Support at the University of California, Merced.

Abstract
Whatever your method of selecting institutions for comparison and benchmarking, you can both increase the validity and accuracy of those comparisons and extend the value of comparisons to department and college levels by constructing a peer institution from disaggregated components. This paper will demonstrate the methodology using the National Study of Instructional Costs and Productivity (Delaware Cost Study), the Faculty Salary Survey by Discipline (Oklahoma State University [OSU]), and Academic Analytics, LLC, to construct better peer institutions with comparative statistics at campus, college, and department levels for faculty salaries, instructional costs, and research activity. The methodology can also be used to fine-tune traditional peer methodologies and should be added to the institutional research arsenal of cluster-, threshold-, hybrid-, and panel-based peers.

NARRATIVE

In the most influential institutional research document describing peer institution selection, Paul Brinkman and Deb Teeter (1987, p. 7) wrote, "In developing peer groups, it is unrealistic to expect to find perfect matches, 'clones' as it were, for the home institution." In fact, practitioners soon discover that the use of even a handful of narrowly described thresholds (same schools and colleges of same relative sizes) will eliminate all other universities, and the researcher is left with an off-the-rack fit instead of a tailored fit. This paper asserts that Brinkman and Teeter were wrong about finding perfect matches. There is an alternative that will produce a near-perfect match: that is, a clone or doppelganger university. It just will not be a brick-and-mortar university. In fact, it won't exist except on spreadsheets or in computer code.

Traditional methods of peer group selection can be classified into developed or predetermined types. These types are not mutually exclusive and most peer selection processes incorporate elements of multiple types. Predetermined types are easily communicated publicly and include the following:

1. Natural peers are based on geography, athletics conferences, consortiums, or similar factors. These peers are particularly useful when communicating with legislators or the public in general.
2. Traditional peers are based on long-term associations or rivalries (e.g., Ivy League, State versus University of).
3. Jurisdictional peers are based on political, legal, and administrative systems (e.g., state, regional, campuses of the university system, accreditation regions).
4. Classification-based peers are most often based on Carnegie Basic Classification or a subset thereof.

Developed peers rely on measured characteristics and can vary from simple (e.g., disciplinary composition clusters, public Research 1 and 2 [R1 and R2]), to complex (e.g., student characteristics, funding levels, composition by student levels, professional programs), and include the following:

1. Cluster analysis is more statistically complex. It sorts institutions into groups based on composition dimensions.

Table 1. Home U Instruction by Department and College Expenditures Compared to Expenditures at National Research Universities (Data Are Fictitious)

Home U Degree Programs / Majors	CIP	Delaware Discipline if Different	Home U FTE Students (Ugrad SCH / 15 + Grad SCH / 12)	Home U Instruction Expenditure	Home U Instruction $ / FTE Student
Anthropology	45.02		127	$888,679	$6,975
Cognitive Sciences	30.25	42.00 Psychology	208	$1,508,545	$7,269
Economics	45.06		229	$1,100,499	$4,810
History	54.01		114	$1,035,698	$9,078
Literatures and Cultures	16.01		458	$3,719,811	$8,125
Management	52.02		115	$565,035	$4,928
Political Science	45.10		173	$1,721,097	$9,968
Psychology	42.01		827	$3,734,230	$4,517
Sociology	45.11		273	$1,236,805	$4,529
School of Social Sciences, Arts, and Humanities			2523	$15,510,399	$6,148
Applied Mathematics	27.03	27.00 Mathematics and Statistics	782	$3,300,100	$4,218
Bioengineering	14.05		40	$805,709	$19,943
Biological Sciences	26.01		605	$3,392,147	$5,611
Chemistry	40.05		492	$2,905,605	$5,905
Earth Systems Sciences	40.06		104	$1,607,946	$15,506
Physics	40.08		219	$1,941,943	$8,863
School of Natural Sciences			2242	$13,953,450	$6,223
Computer Science and Engineering	14.09	11.07 Computer Science	223	$2,474,021	$11,083
Environmental Engineering	14.14	14.08 Civil Engineering	113	$1,632,681	$14,498
Materials Science and Engineering	14.18		77	$844,570	$10,921
Mechanical Engineering	14.19		124	$2,047,071	$16,529
School of Engineering			537.0	$6,998,343	$13,032
Writing Program	23.13		725.2	$4,340,547	$5,985
Home U Overall			**6,027.3**	**$40,802,739**	**$6,770**

Delware Cost Study Instruction $ Per FTE Student	Home U Instruction $ Per Student / National Research Univ $ Per Student	Home U - Delaware Instruction $ Per Student	Weighting National Instruction Expenditure by Home U FTES	$ Difference Times Home U FTE Students
$5,865	119%	$1,110	747,299	141,380
$5,632	129%	$1,637	1,168,828	339,717
$5,930	81%	-$1,120	1,356,784	-256,285
$6,157	147%	$2,921	702,411	333,287
$5,762	141%	$2,363	2,638,036	1,081,775
$6,948	71%	-$2,020	796,704	-231,669
$6,809	146%	$3,159	1,175,687	545,410
$5,632	80%	-$1,115	4,656,162	-921,932
$5,111	89%	-$582	1,395,644	-158,839
$5,802	106%	$346	$14,637,554	872,845
$5,172	82%	-$954	4,046,918	-746,818
$15,849	126%	$4,094	640,300	165,409
$6,824	82%	-$1,213	4,125,677	-733,530
$7,254	81%	-$1,349	3,569,331	-663,726
$9,531	163%	$5,975	988,365	619,581
$8,417	105%	$446	1,844,165	97,778
$6,785	92%	-$563	$15,214,754	-1,261,304
$10,175	109%	$908	2,271,230	202,791
$11,181	130%	$3,317	1,259,167	373,514
$15,508	70%	-$4,587	1,199,285	-354,715
$10,748	154%	$5,781	1,331,140	715,931
$11,286	115%	$1,746	6,060,822	937,521
$4,942	121%	$1,043	3,583,938	756,609
$6,553	**103%**	**$217**	**39,497,068**	**1,305,671**

For example, institutions can be sorted based on relative mix of disciplinary degrees awarded.
2. Threshold analysis is straightforward and easily communicated. The characteristics of potential peers have to fall within a range above and below the measured characteristic of the home institution. For example, if headcount enrollment at the home institution is 20,000, then peers would have enrollments between 17,500 and 22,500. Thresholds can be similarly applied to full-time equivalent (FTE) enrollment, admissions scores, in-state enrollment percentage, or almost anything commonly measured.
3. Panel analysis relies on the expertise of professionals, typically institutional executives, who either nominate potential peers or eliminate potential peers identified by other methods.
4. It is more common for the methodology to be a hybrid of other types in various sequences (e.g., cluster analysis followed by threshold analysis and then submission to a panel).

In contrast with developed or predetermined institutional peers, the constructed peer methodology described in this paper is typically built from departmental or disciplinary components. Unlike institutional peers, the constructed peer methodology can use disciplinary components that vary from one department or school to another. Psychology might select Psychology peers and Biology might select a different set of Biology peers. But even when the home institution is constrained to compare with a given institutional set, the constructed peer methodology can be based on the elemental characteristics of those institutions. Because the result is constructed from disciplinary components, the result will be useful at the level of the department and will be more accurate when aggregated to college and institutional levels.

In spite of the availability of data to support a constructed peer methodology by department, especially for faculty salaries and disciplinary expenditures, the methodology has not contributed to the discussions of peer institution groups that were popular in the 1980s and that continue to dominate institutional research practice: various cluster analysis techniques and some measure of judgment (panel, hybrid, threshold, panel) about institutional key or performance statistics (Brinkman & Teeter, 1987; Terenzini, Hartmark, Lorang, & Shirley, 1980; Trainer, 2008; Xu, 2008). There are two very good reasons to revisit peer methodology. First, good disaggregated data are available for critically important institutional research elements including faculty salaries (e.g., OSU since 1974), instructional costs and productivity (Delaware since 1992), and faculty research activities (Academic Analytics, LLC). Second, disciplinary composition should always be an institutional research consideration because it dramatically affects every aspect of teaching, research, and service; and every aspect of the student experience. There is less variance among universities by program than among programs within a university (Chatman, 2010).

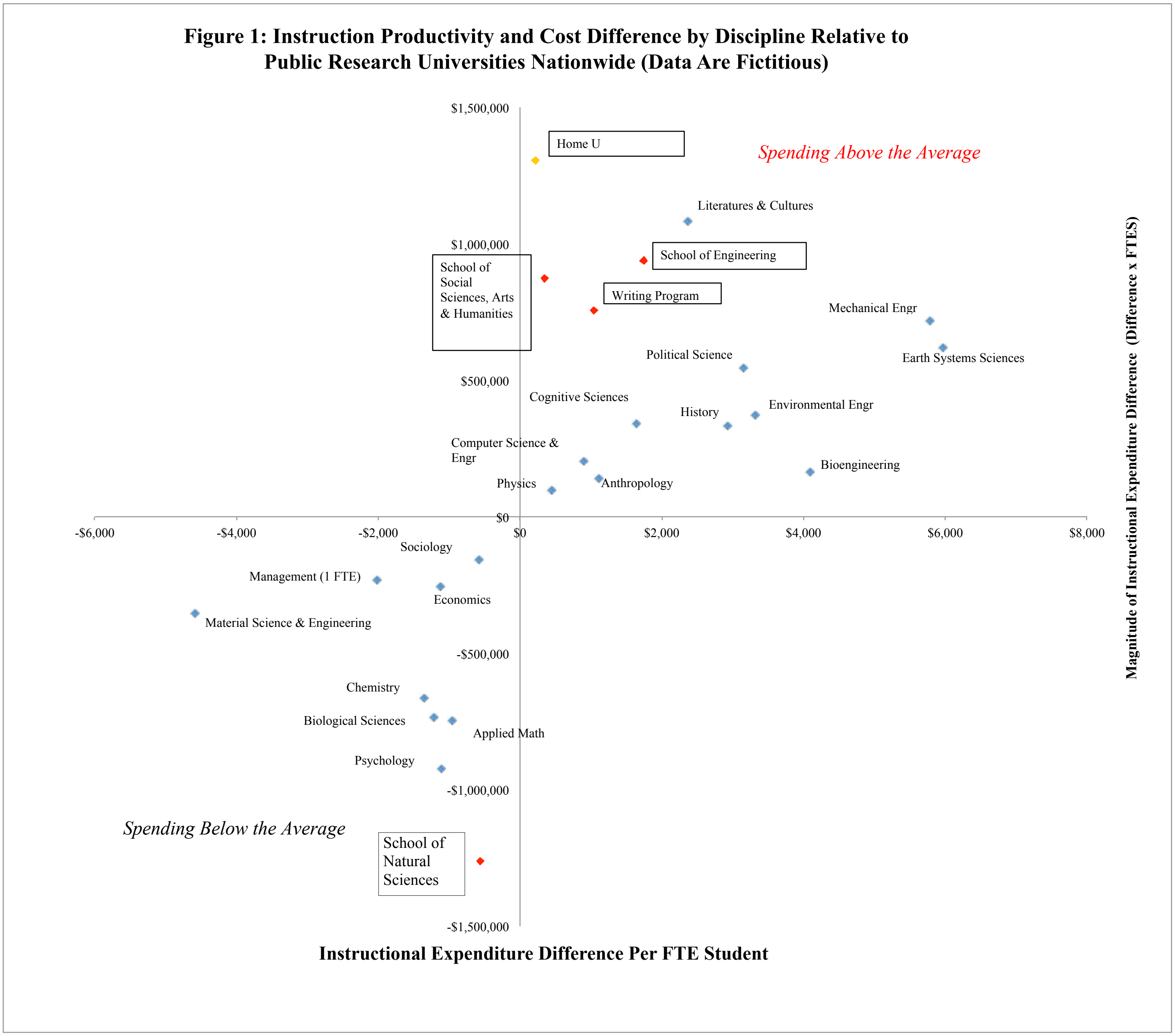
METHODOLOGY

Information from the Delaware Cost Study, the OSU Faculty Salary Survey by Discipline, and Academic Analytics, LLC, will be used to construct doppelganger universities with comparative statistics at campus, college, and department levels for faculty salaries (OSU), instructional cost (Delaware), and faculty research and scholarly activity (Academic Analytics, LLC). The central feature of the methodology is constructing a peer by weighting comparative per capita or mean values to reflect the home institution composition. The methodology will be introduced using per capita instructional costs from the Delaware Cost Study. The other applications are similar in that they find a comparator per capita figures at the lowest available level of aggregation and weight that per capita figures using home institution amounts to create constructed or doppelganger departments. The resulting departments can be combined with others to produce a constructed peer or doppelganger university. The data shown are fictitious but generally reflect the characteristics of the University of California, Merced, a university that grew from farmland to research university in 10 years and continues to grow at a very rapid rate. The nearly 7,000 undergraduates in 2016 had Hispanic, Pell Grant recipient, and first-generation majorities.

Table 2. Department and College Level Faculty Salary Comparisons Using School of Natural Sciences at Home U and OSU Research Universities Average Salaries (2012–2013)

Home U (Actual)								
Ladder Rank	**Content Area**	**Four-Digit CIP Code**	**Salary**	**Head-count**	**OSU R1 & R2**	**Home U Expenditure**	**Comparator-Based Expenditure**	**Home U / OSU R1&R2**
Professor	Applied Mathematics	27.03			122,866			
Assoc. Prof.	Applied Mathematics	27.03	82,000	4	83,941	328,000	335,764	98%
Asst. Prof.	Applied Mathematics	27.03	77,200	4	73,884	308,800	295,536	104%
Professor	Biology, General	26.01	142,400	3	126,463	427,200	379,389	113%
Assoc. Prof.	Biology, General	26.01	83,717	6	84,375	502,302	506,250	99%
Asst. Prof.	Biology, General	26.01	74,040	10	72,848	740,400	728,480	102%
Professor	Biomedical/Medical Engineering	14.05	149,400	1	155,250	149,400	155,250	96%
Assoc. Prof.	Biomedical/Medical Engineering	14.05	99,300	1	104,157	99,300	104,157	95%
Asst. Prof.	Biomedical/Medical Engineering	14.05	89,400	2	83,843	178,800	167,686	107%
Professor	Chemistry	40.05	117,667	3	135,046	353,001	405,138	87%
Assoc. Prof.	Chemistry	40.05	88,650	2	84,958	177,300	169,916	104%
Asst. Prof.	Chemistry	40.05	74,667	6	74,369	448,002	446,214	100%
Professor	Ecology, Evolution, Systematics, and Population Biology	26.13	109,350	2	128,697	218,700	257,394	85%
Assoc. Prof.	Ecology, Evolution, Systematics, and Population Biology	26.13	82,500	1	91,106	82,500	91,106	91%
Asst. Prof.	Ecology, Evolution, Systematics, and Population Biology	26.13	78,750	4	77,694	315,000	310,776	101%
Professor	Physics	40.08	151,700	1	122,345	151,700	122,345	124%
Assoc. Prof.	Physics	40.08	85,425	4	84,901	341,700	339,604	101%
Asst. Prof.	Physics	40.08	78,960	5	75,386	394,800	376,930	105%
School of Natural Sciences								
Professor	Overall		130,000	10	131,952	1,300,001	1,319,516	99%
Assoc. Prof.	Overall		85,061	18	85,933	1,531,102	1,546,797	99%
Asst. Prof.	Overall		76,961	31	75,020	2,385,802	2,325,622	103%
				59		5,216,905		
					Mean Overall	**88,422**	**99,708**	**89%**

Figure 1. Instruction Productivity and Cost Difference by Discipline Relative to Public Research Universities Nationwide (Data Are Fictitious)



Comparing Instructional Costs at the Constructed Peer Institution

Please note that the data here and elsewhere in the report are fictitious and are offered to illustrate the methodology. Steps 1 through 4 describe the methodology for one department, Sociology. The same steps apply to other disciplines/departments and the results can be aggregated to colleges or to the university total.

1. The home institution instructional expenditure in Sociology was $1.2 million.
2. The expenditure per FTE student (based on Sociology student credit hours [SCHs] by level) was $4,529 at the home campus.
3. The per student expenditure in

sociology for research universities (R1 and R2) from the Delaware Cost Study was $5,111, compared to $4,529 at the home campus. The home institution therefore spent 89% of the "expected" amount, or $582 less per student.

4. The home institution had 273 FTE students in Sociology and therefore spent about $159,000 less to deliver sociology instruction than expected.

Steps 1 through 4 were repeated for the other departments and then aggregated to the college and university levels in Table 1. For the School of Social Sciences, Arts, and Humanities, the instructional expenditure was 106% of the constructed peer; Engineering was 115%; and Natural Sciences was 92%. Overall, the home institution instructional expenditure was 103% of the constructed research university peer. The difference per FTE student overall was $217, or $1.3 million in total.

In this example, all public research universities were used for comparison but Delaware supports analysis by selected peers and the peer set could even vary based on the department or college, especially if the home institution participates in a data-sharing consortium (e.g., Association of American Universities Data Exchange [AAUDE]). It is easy to imagine that an Engineering peer set could differ from a Natural Sciences peer set, etc.

Table 1 shows the detail behind computing comparisons and the difference between the local university and the comparative figures per FTE student by department, college, and campus. Figure 1 arrays expenditure differences along two axes. The x-axis is the difference per FTE student and the y-axis is the difference for all FTE students (difference per student times number of FTE students). The two axes of Figure 1 are used because a big difference per FTE student in a small department can have less institutional impact than a small difference in a large department.

In examining the scatterplot in Figure 1, it is clear that the per student institutional composite was close to that for the constructed peer, but that there was a great deal of variation by department and school. If the analysis was limited to institution-level measures, the school and departmental differences would have been obscured. That is a danger of institution-level measures. The composite can be at the mean peer value, suggesting normative performance, but be made up of values showing wide variation. Funding at the institutional level without consideration of disciplinary patterns makes that misleading outcome more likely. The results by school show that one school, Natural Sciences, is spending less than expected for natural science disciplines and is helping to offset the other schools that are spending more than expected for their disciplines. Both schools (Natural Sciences; and Social Sciences, Arts, and Humanities) are actually spending very similar amounts per FTE student. However, the expected expenditure for natural sciences is $563 more per FTE student in this example. It is reasonable to expect the dean of Natural Sciences to make these differences known in the next budget cycle. Please recall that these are not actual amounts and are used to illustrate the methodology; even if accurate, however, the results are not intended to be prescriptive. They do not show programs to be cut or where investments are needed, but they do identify areas of greater or lesser spending than is average and raise the question of whether those spending differences were intentional or a historical artifact.

Other Examples

The technique is generally applicable. Any comparative measure from an outside source that is available at a low level of aggregation can be weighted to reflect local composition and thereby create more-accurate, more-valid, and more-useful statistics for the department, school, and university. The following will illustrate the methodology using faculty salaries and faculty professional research activity but it could be extended to almost any measure.

Faculty Salary Comparison

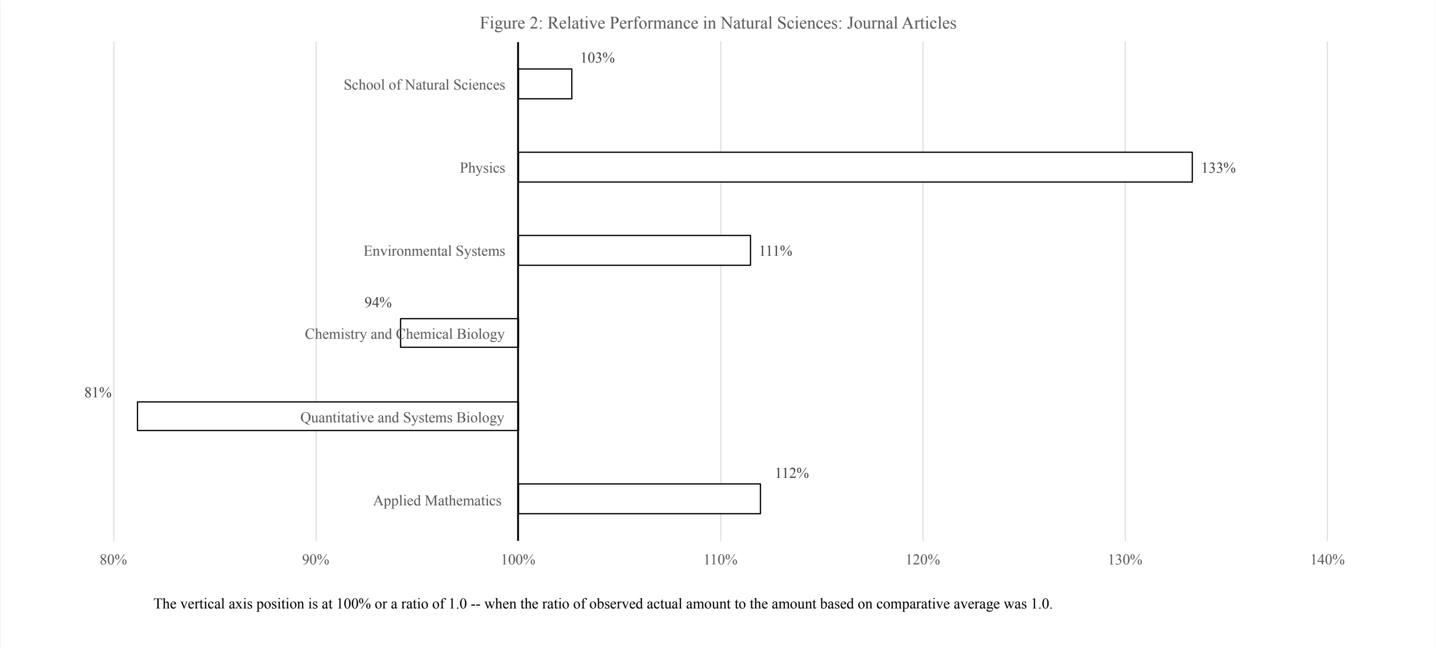
The predominant factors associated with variance in faculty salaries are discipline and rank. Unless the comparator peer set has the same faculty composition by rank and discipline, there will be error that might be masked at the campus level. That error can be controlled by constructing a peer that does have the same disciplines and ranks in the same amounts. The following example illustrates the methodology using OSU Faculty Salary Survey by Discipline averages for public R1 and R2 institutions. As was the case

Table 3. Home U Data Compared to Public and Private University Faculty Academic Analytics for Natural Sciences (Data Are Fictitious)

	Academic Analytics (Per Capita)							
Natural Sciences Disciplines	**Academic Program from Academic Analytics**	**Home U Tenured and Tenure Track Count from Academic Analytics Records**	**Books (2005-2014)**	**Journal Articles (2011-2014)**	**Citations (2010-2014)**	**Grants (2010-2014)**	**"Grant Dollars (2010-2014)"**	**Honors and Awards (Lifetime)**
Applied Mathematics	Home U	11	0.3	10.3	55.6	1.1	78,497	0.3
	Academic Analytics		0.2	9.2	101.6	1.5	180,000	0.9
Actual Output as Percent of Comparative-Average Based Output in Discipline								
Quantitative and Systems Biology	Home U	40	0.1	10.2	153.1	1.0	181,365	0.3
	Academic Analytics		0.2	12.5	180.4	1.3	340,000	0.4
Actual Output as Percent of Comparative-Average Based Output in Discipline								
Chemistry and Chemical Biology	Home U	16	0.3	14.6	288.3	1.1	206,538	0.3
	Academic Analytics		0.2	15.5	330.2	1.8	330,000	1.1
Actual Output as Percent of Comparative-Average Based Output in Discipline								
Environmental Systems	Home U	27	0.1	12.2	152.6	1.5	235,405	0.4
	Academic Analytics		0.2	10.9	142.5	1.4	190,000	0.5
Actual Output as Percent of Comparative-Average Based Output in Discipline								
Physics	Home U	18	0.2	22.4	125.1	0.9	110,077	0.6
	Academic Analytics		0.3	16.8	200.0	1.2	150,000	0.7
Actual Output as Percent of Comparative-Average Based Output in Discipline								
School of Natural Sciences	Home U	107						
	Academic Analytics							
Actual Output as Percent of Comparative-Average Based Output in Discipline								

Academic Analytics (Weighted)					
Books	**Journal Articles**	**Citations**	**Grants**	**Grant Dollars**	**Honors and Awards**
3.3	113.3	611	12.0	863,464	3.0
2.2	101.2	1,118	16.5	1,980,000	9.9
150%	112%	55%	73%	44%	30%
4.0	406.0	6,123	41.2	7,254,594	10.0
8.0	500.0	7,216	52.0	13,600,000	16.0
50%	81%	85%	79%	53%	63%
4.8	233.6	4,612	18.1	3,304,601	5.0
3.2	248.0	5,283	28.8	5,280,000	17.6
150%	94%	87%	63%	63%	28%
2.7	328.1	4,120	40.0	6,355,939	11.1
5.4	294.3	3,848	37.8	5,130,000	13.5
50%	111%	107%	106%	124%	82%
3.2	403.2	2,252	16.9	1,981,379	10.1
5.4	302.4	3,600	21.6	2,700,000	12.6
60%	133%	63%	78%	73%	80%
18.0	1,484.2	17,718	128.2	19,759,977	39.1
24.2	1,445.9	21,064	156.7	28,690,000	69.6
75%	103%	84%	82%	69%	56%

Figure 2. Relative Performance in Natural Sciences: Journal Articles



for instructional expenditures, the mean salaries for the comparators by discipline and rank are weighted by the local university composition and the total expenditures are used to create college and institutional comparisons. For this example, the methodology will be applied to the School of Natural Sciences and illustrated using Chemistry. As shown in Table 2, Chemistry professors are paid $135,046, on average, at R1 and R2 schools. The home institution had three professors. If the home department paid the three professors exactly the national mean, the home department would have spent $405,138. The home department actually paid professors $353,001, or 87% of the average. For all departments in the School of Natural Sciences, the home school spent $1,300,001 on professor salaries. If every department in the school had paid the national public R1 and R2 average to each professor, the school would have spent 99% of the aggregated $1,319,516 amount.

The constructed peer methodology is especially useful at Home University (Home U), an 11-year-old public research university, because its mix by rank and discipline is atypical. Because it is a new university, Home U has a much higher proportion of assistant professors and a much lower proportion of professors than is typical. It also has more STEM faculty than is typical of a public university. The unweighted campus mean, not adjusted for the higher proportion of assistant professors and lower proportion of professors, would be well below a simple institutional-level comparator even though both the comparisons by rank and the weighed institutional mean were above the comparator averages. This is illustrated for Natural Sciences in Table 2. By rank, faculty salaries were at or close to the national average: professor salaries were 99% of average, associate professors were 99% of average, and assistant professors were 103% of average. However, the overall average for the home institution was 89% of the overall national average. A result based on component comparisons that is different from the overall comparison is an example of the Yule–Simpson effect, defined as a trend appearing in different groups of data that disappears or reverses when the data are aggregated. In this case, means were close to the average by rank but substantially lower overall. As was the case for instructional costs, large differences for a few faculty should not be cause for alarm, but substantially

different patterns by discipline might be cause for discussion, or there might be a strategic plan to recruit substantially more-competitive faculty in one area or another. The results are not prescriptive but should be illuminating.

Faculty Professional Activity

The third example relies on data from Academic Analytics, LLC, a service that gathers federal grants, books, honorific awards, journal and conference publications, and citations for individual faculty and makes those data available to subscribing institutions. The data values shown here are fictitious but the measures shown are available from Academic Analytics and are used with permission. Because faculty are identified by disciplinary area and institution type by Academic Analytics, the mean values for all faculty in a disciplinary area can be used as a comparative standard (Table 3). To make the explanation less complicated, analysis will again be limited to the School of Natural Sciences.

For example, and using the comparative subset of these pseudo value statistics in Physics, the comparative average values per faculty member in Physics were about 0.3 books (2005–2014), 16.8 journal articles (2011–2014), 200 citations (2010–2014), 1.2 grants (2010–2014), $150,000 grant dollars (2010–2014), and 0.7 honors and awards (lifetime). Because the home department had 18 faculty members, the comparative average–based outcome for the 18 faculty members in Physics was 5.4 books, 302 journal articles, 3,600 citations, 21.6 grants, $2,700,000 grant dollars, and 12.6 honors and awards. Actual counts were compared to the comparative average–based outcomes and expressed as percentages (60% to 140% for this Physics example). The comparative average–based outcomes and observed amounts can be aggregated to school and campus levels and can be used to identify areas of relative strengths. Those relative amounts can be expressed graphically. For this example, the relative percentages for journal articles in Natural Sciences disciplines are shown as Figure 2. Again, comparison at the school level (103%) obscures a substantial range by department (133% in Physics to 81% in Quantitative and Systems Biology). For the School of Natural Sciences, journal articles, citations, and number of grants were stronger. Books, grant dollars, and number of honors and awards were lower. That would be a reasonable pattern for a very young university with a disproportionately small number of full professors. As was true for other comparisons, the results are not prescriptive and, especially in this case, should not be used to establish a rigid individual faculty norm for evaluation. The norms are more meaningful at discipline and school levels.

SUMMARY

There are remarkably few published productivity standards in higher education (Chatman, 2016). Instead, analysis is typically parochial, treating history as a comparative standard, or, at the institutional level, treating a cluster of other universities as a comparative standard. The process of selecting peer institutions uses any of a variety of methods or combinations of predetermined or developed peer methods that have been well described elsewhere (Brinkman & Teeter, 1987) and continue to dominate higher education (the National Center for Education Statistics' Executive Peer Tool, or ExPT). This is true even though much better data sources are available that support comparative analysis at the department level or at even smaller aggregates. This paper offers a constructed peer methodology as yielding a better, more-accurate, and more-valid peer because it accurately reflects the disciplinary composition of the home institution and isolates the comparison to the variable being considered.

A constructed peer institution for comparison has important advantages to peers from traditional institutional methodologies. First, the process of constructing a peer produces comparative values at all levels of academic aggregation (e.g., department, school or college, and university). Second, the normative or standard values used to construct the peer can be tailored by department, school, or college so that each level can be based on its own tailored set of institutions. Perhaps the social sciences college and the engineering college of an engineering-focused university should have different peer sets. Third, the methodology is generalizable. The same steps used to construct a faculty salary peer can be used to produce a student satisfaction peer, an alumni engagement peer, a facility utilization peer, a development peer, etc. If a comparative measure

can be expressed at the level of a department and at a per capita rate common across institutions (e.g., faculty or FTE students) then the per capita rate can be inflated to reflect the home institution and support a direct comparison. For example, the mean level of satisfaction by disciplinary area for a comparable set of institutions can be weighted by local number of students by major and then compared at the college or institutional level. Fourth, in every case the constructed peer fits the home institution accurately. It has the same programs in the same relative and absolute amounts. For example, it has exactly the same number of faculty overall and by rank and discipline. It is a clone or doppelganger. Given that disciplinary differences are ubiquitous, institutional values used in comparison that ignore those differences might reflect disciplinary composition more than real differences. In other words, the home institution might appear to spend less on instruction per student because it is primarily a social sciences institution comprised of disciplines associated with less-expensive instruction. Likewise, student satisfaction and engagement varies by area of major (Chatman, 2010) and institutional comparisons of satisfaction or engagement will reflect disciplinary composition differences. Institutional measures that ignore differences in disciplinary composition (e.g., Voluntary System of Accountability™) can obscure real differences. Fifth, a variety of relative performance measures can be combined to yield a consistent dashboard or performance profile for departments, colleges, and the institution. For example, the measures described in this paper produce an academic summary that includes cost per credit hour, faculty salaries, and faculty professional activities for a constructed peer that mirrors the home institution.

A constructed peer also has two substantial disadvantages. First, it is more difficult to make transparent; also, in many cases, policies about sharing and reporting information among institutions prevent making the detail available. Second, it requires more effort on the part of the user to understand and the provider to describe because it is less familiar. It is more difficult to explain to higher education constituencies. A university president or chancellor will likely choose to report comparison to the average faculty salary for Pac-12 institutions over the average faculty salary for a peer constructed from the bottom up using various combinations of Association of American Universities (AAU) public institutions. And, while it is less accurate and less valid, comparisons at the institutional level are often very similar to the constructed institutional average. Using an older sister university—for example, the overall faculty salary comparison to OSU's Faculty Salary Survey by Discipline—showed the sister university faculty salary average to be 9% higher. The comparison based on analysis using the constructed peer methodology by rank and discipline was 7% higher. If the only purpose of the peer comparison is to compare institutional-level values, then this method of peer construction is probably not worth the additional effort and loss of transparency. However, if the value of comparisons is extended to school and department levels, then constructed peers are preferable. If the methodology were to become more common, then its reporting would be less of a problem. We regularly use many summary measures and indices as if the meaning were simple and straightforward when they are actually remarkably complex. Some examples include the consumer price index, unemployment rate, Dow Jones industrial average, and even wind chill.

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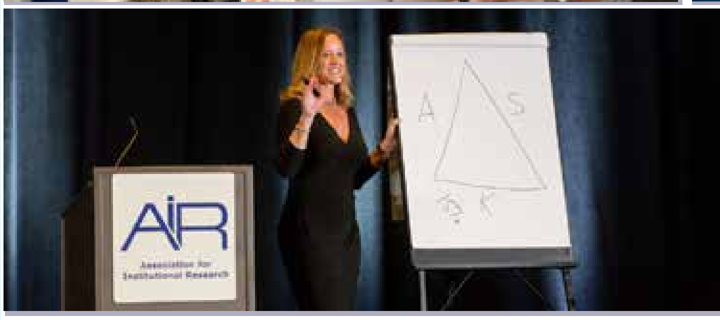

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